**FACILITIES INSTRUCTIONS,
STANDARDS, AND TECHNIQUES
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HAZARDOUS ENERGY CONTROL PROGRAM

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***The Appearance of the Internet Version of This
Manual May Differ From the Original, but the Contents Do Not***

**UNITED STATES DEPARTMENT OF THE INTERIOR
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I. INTRODUCTION

1.1. PURPOSE. The purpose of this document is to establish coordinated and consistent procedures and operating criteria for the safe and reliable operation and maintenance (O&M) of those facilities of the Federal power and water system for which the Bureau of Reclamation (Reclamation) is responsible.

1.2. SCOPE. This document establishes procedures and operating criteria which shall be complied with throughout Reclamation. This document prescribes programs and procedures for the safety of personnel whose duties require them to work on or near any system that produces, uses, or stores hazardous energy. These programs and procedures are mandated by Federal law and are necessary to prevent personal injury and damage to resources.

1.3. HAZARDOUS ENERGY CONTROL PROGRAM.

1.3.1. Each facility shall utilize this document *(Bureau of Reclamation Hazardous Energy Control Program),* which defines the hazardous energy control requirements of Reclamation facilities, to develop individual facility programs. The individual program shall incorporate Hazardous Energy Control Procedures, list the responsible official, authorized employees and their responsibilities, and define personnel training requirements.

1.3.2. Before performing service or maintenance on equipment in which the unexpected energizing, startup, or release of stored energy could occur and cause personal injury, property damage, loss of content, protection, or capacity, it shall be covered by a Hazardous Energy Control Procedure and its energy sources controlled in accordance with the requirements of this document. In such circumstances, personnel and resources shall not be considered protected until Hazardous Energy Control Procedures have been implemented.

1.3.3. Training shall be provided in accordance with section III to insure that the purpose and function of the Hazardous Energy Control Program is understood by all personnel.

1.3.4. Annual inspections of each facility's Hazardous Energy Control Program shall be conducted and documented as defined in section IV.

1.3.5. Lockout and tagout shall be performed only by authorized employees.

1.3.6. Systems with energy isolating devices which are capable of being locked out shall utilize locking devices.

1.3.7. If an energy isolating device is not capable of being locked out, the Hazardous Energy Control Procedures shall utilize tagout. When a tagout device is used in lieu of a lockout device, the following requirements shall apply.

1.3.7.1. All tagout requirements of the Hazardous Energy Control Program procedures shall be complied with.

1.3.7.2. The tagout device shall be attached to the same location that the lockout device would have been attached if possible. If this is not possible, then the tag shall be attached as close as safely possible to the device and in a position that will be immediately obvious to anyone attempting to operate the device.

1.3.7.3. Additional means (e.g., placing the tag in a manner which inhibits operation of the energy isolating device, removing an isolating circuit mechanism, blocking a control switch, opening an extra disconnecting device, removing a valve handle, etc.) shall be employed to provide a level of protection equivalent to that provided by a lockout device.

1.3.8. To the extent possible, lockout devices shall be required on all new replacements or additions. Renovation or modification of existing equipment or systems shall include hazardous energy isolating systems.

1.3.9. Contractor personnel performing work covered by the Hazardous Energy Control Program at Reclamation-operated facilities shall comply with all existing Hazardous Energy Control Procedures of the facility and the Hazardous Energy Control Program.

1.3.10. Equipment which can be removed from service <u>without a</u> <u>clearance</u> must have a procedure in place for utilizing a lockout/tagout device.

A. Procedures shall be developed, documented, and utilized for the control of potentially hazardous energy when employees are engaged in the activities covered by this section.

OR

B. When all the following elements exist, a required procedure for a particular machine or piece of equipment need not be documented.

1. The machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shutdown which could endanger employees.

2. The machine or equipment has a single energy source which can be readily identified and isolated.

3. The isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment.

4. The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.

5. A single lockout device will achieve a locked-out condition.

6. The lockout device is under the exclusive control of the authorized employees performing the servicing or maintenance.

7. The servicing or maintenance does not create hazards for other employees.

8. The facility, in utilizing this exception, has had no accidents involving the unexpected activation or reenergization of the machine or equipment during servicing or maintenance.

1.4. HAZARDOUS ENERGY CONTROL PROGRAMS AND PROCEDURES. Each facility shall maintain a Hazardous Energy Control Program and Hazardous Energy Control Procedures.

1.4.1. The Hazardous Energy Control Program shall:

A. Incorporate Hazardous Energy Control Procedures for the facility, list the responsible official and authorized employees and their responsibilities, and define personnel training requirements.

B. Be supplemental to and within the guidelines of this document.

C. Be reviewed and updated at least annually.

D. Be made available to all personnel with potential exposure to hazardous energy.

1.4.2. The Hazardous Energy Control Procedures shall clearly and specifically outline the scope, purpose responsibility, authorization, rules, and techniques to be utilized for the control of hazardous energy, including, but not limited to, the following:

A. A statement of the intended use of this procedure.

B. Procedural steps for shutting down, isolating, blocking, and securing systems to control hazardous energy.

C. Procedural steps and responsibilities for the placement and removal of lockout and tagout devices.

D. Procedural steps for placing, moving, or removing protective grounds if required by Reclamation Safety and Health Standards.

E. Requirements for testing the system to verify the effectiveness of isolation and lockout and tagout devices.

F. A description of emergencies which may occur during system lockout or tagout and procedures for safely responding to those emergencies.

G. The means to enforce compliance with the procedures.

1.5. REFERENCES.

Reclamation Instruction Series 250, "Power Operation and Maintenance."

Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.147.

Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.269.

Reclamation Instructions, Part 365, Occupational Safety and Health. Reclamation Safety and Health Standards (RSHS)

1.6. **REVIEW AND REVISION.** This document will be reviewed annually by Reclamation to assure that the guidelines and procedures herein are adequate for the safe and reliable operation and maintenance of the Federal power and water system. Proposed revisions to this document will be reviewed prior to publishing and implementing a revised document. Reclamation's programs and Hazardous Energy Control Procedures will be reviewed annually to assure conformity with this document.

1.7. **INTERPRETATIONS.** The stated interpretations for the following words shall be applied throughout this document:

"May"-Permissive choice
"Must"-Mandatory
"Shall"-Mandatory
"Should"-Advisory
"Will"-Mandatory, but allowing the employee or party some discretion as to when, where, and how.

As used in this document, the pronouns "he," "his," and "himself' refer to a specific individual or position, which might be "she," "her," or "herself' in a given circumstance. Also used in this context are the terms "foreman," "lineman," "switchman," and "workman."

1.8. EMERGENCIES. In an emergency, authorized employees may modify or suspend any of these guides temporarily as may be considered necessary to permit proper handling of the specific emergency. However, in handling such emergencies, safety of personnel shall be given predominant consideration. If emergency switching is required and authorized employees are not available, an effort shall be made to utilize other personnel. These may be either Agency or non-Agency employees who are (although not currently authorized) deemed qualified by the operations supervisor to perform the switching.

1.9. PHILOSOPHY OF CLEARANCE PROCEDURES. The following principles, whether or not they are specifically addressed in this document, are considered basic to the safe operation of the Federal power and water system:

1.9.1. The priorities involved in applying clearance procedures are:

A. Physical safety of employees and the public.

B. Integrity and reliability of the Federal power and water system.

C. Protection of equipment.

D. Service to the customer.

1.9.2. Safety tags, hot line order tags, special work permits, locks, lockout/tagout devices, and danger tags are applied to protect people; special condition tags are applied to protect equipment and/or the Federal power and water system.

1.9.3. Throughout Reclamation, all activities such as placement, issuance, receipt, release, and removal of all switching programs and associated operations are to be performed by authorized employees, except in emergencies as provided for in paragraph 1.8.

1.9.4. All switching operations shall be guided and tested by the fundamental principle: "Start with the correct procedure and follow it exactly," and can best be accomplished by following:

The Six Basic Steps of Switching:

1. Carry the switching program with you while switching.

2. Touch or point to the device identification nameplate to verify its/your location.

3. Recheck the switching program for right location and right sequence.

4. Verify anticipated device position.

5. Perform requested action on the device.

6. Verify desired device position.

1.9.5. Employees shall be indoctrinated to realize, "If I violate this safety tag, lockout device, tagout device, hot line tag, or danger tag, I can kill somebody!"

1.9.6. Safety, hot line, and danger tags are to be considered the same as a lock. Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical protection that is provided by a lock. Tagged equipment shall not be operated when any of these tags are in place.

1.9.7. A basic principle pertaining to Federal power and water system operation is that the length of time the equipment is removed from service for any reason shall be kept to a minimum. This will be accomplished by the following:

A. The equipment will be made available to the crews at the prearranged time.

B. The crews will be ready to start work at the prearranged time.

C. The crews will release the equipment promptly upon completion of the work.

D. Federal power and water system equipment will be returned to service when the work is completed.

E. Events such as shift changes, lunch periods, and overtime considerations shall not unduly impede or delay returning equipment to normal.

II. RESPONSIBILITY AND AUTHORITY

2.1. The responsible official at each project/facility has the responsibility to ensure the requirements of this

document are: (1) properly applied, (2)strictly adhered to, and (3) understood by all affected employees. All supervisors shall ensure that all employees under their jurisdiction are instructed concerning the Hazardous Energy Control Program and its application. Therefore, a current copy of this document shall be readily available at each powerplant, pumping plant, switchyard, substation, control center, and to each authorized employee.

2.2. Formal lists of authorized employees for each facility must be maintained and updated as personnel changes occur. Each operating office shall provide their non-Agency counterpart with a list of their personnel who are certified to request, issue, or receive clearances or hot line orders or to perform switching. It is the responsibility of each project/facility to advise its employees as to the extent of their authority. It is the responsibility of each employee to confine his activities within his authorization.

When training employees to perform switching or to issue and/or receive clearances or hot line orders, a certified switchman, certified job supervisor, or certified operations supervisor must directly observe and be responsible for all steps performed by the uncertified trainee.

2.3. If emergency switching is required (as defined in paragraph 1.8) and authorized employees are not available, effort shall be made to utilize other personnel. These may be either Agency or non-Agency employees (although not currently authorized) who are deemed qualified by the operations supervisor to perform the switching.

Ill. TRAINING

3.1. Training shall be provided to ensure that the purpose and procedures of the Hazardous Energy Control Program are understood by all affected employees and that authorized employees possess the knowledge and skills required for the safe application, usage, and removal of energy controls. All employees involved with Hazardous Energy Control Procedures shall have initial training and must demonstrate adequate working knowledge of hazardous energy control policy, local programs, and procedures prior to placement on the list of authorized employees.

A. Each authorized employee shall receive training in the recognition of hazardous energy sources, the type and magnitude of energy available in the workplace, and the methods and means for energy isolation and control.

B. Each affected employee shall be instructed in the purpose and use of the energy control procedures.

C. All incidental personnel shall be instructed about the procedures and about prohibitions relating to restarting or reenergizing systems which are locked or tagged out.

D. Affected employees shall be subject to examination at any time on this document.

3.1.1. Retraining shall be provided:

A. For all authorized and affected employees whenever there is a change in their job assignments, a change in systems or processes that present a new energy control hazard, or a change in energy control procedures.

B. Whenever a periodic inspection reveals, or there is reason to suspect the presence of, deviations from, or inadequacies in the person's knowledge or use of energy control procedures.

C. At least annually.

3.1.2. The responsible official shall certify and document all training and retraining. Certification shall contain such information as the name of the person; the time, date, and location of training; the name of the trainer; etc.

3.1.3. The individual receiving the training shall sign the training document acknowledging their receipt of training.

IV. INSPECTIONS

4.1. Periodic (at least annual) inspections shall be conducted to ensure that all requirements of the Hazardous Energy Control Program are being followed. As part of this inspection, each Hazardous Energy Control Procedure utilized at the facility shall be inspected. The responsible official shall certify that the periodic inspections have been performed. The certification shall specify the system on which the Hazardous Energy Control Procedures were utilized, the date of the inspections, and the names of personnel performing and participating in the inspections.

4.1.1. Periodic inspections of the Hazardous Energy Control Procedures shall be conducted by a qualified individual. This qualified individual shall be someone who has not or will not be utilizing the specific procedures being inspected.

4.1.2. Periodic inspections of Hazardous Energy Control Programs and procedures shall include a review between the inspector and personnel involved in the use of the procedures to assess individual personal knowledge of and responsibilities under the . program.

4.1.3. Any deficiencies shall be documented and appropriate measures implemented to correct the deficiencies and to ensure future compliance.

V. LOCKOUT AND TAGOUT DEVICES

5.1 Tagout devices shall be standardized (Reclamation-wide) in the following aspects: color, shape, size, print, and format. Tagout devices shall warn against the hazardous conditions and include the legend: DANGER, HANDS OFF, DO NOT OPERATE.

5.2. Lockout/tagout devices shall singularly indicate the identity of the person applying the devices.

5.3. Tagout devices shall be substantial enough (including their means of attachment) to prevent inadvertent or accidental removal; attached by means which are nonreusable; attachable by hand; self-locking; nonreleasable, with a minimum unlocking strength of no less than 50 pounds; and having the basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

5.4. Lockout/tagout devices shall be constructed and printed so that exposure to weather conditions, wet or damp locations, or corrosive environments will not cause the tag to deteriorate or the message to become illegible.

VI. APPLYING LOCKOUT AND TAGOUT DEVICES

The equipment shall be turned off or shut down in accordance with the Hazardous Energy Control Procedure.

6.1. Where possible, lockout devices shall be affixed to each energy isolating device by authorized employees in a manner that will maintain the energy isolating device in the safe position. Where lockout devices cannot be affixed, tagout devices shall be affixed at the same point where the lockout device would be attached.

6.1.1. Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, or otherwise rendered safe. The job supervisor is responsible for the placing, removing, or moving personal protective grounds in accordance with the requirements specified in the Hazardous Energy Control Procedures submitted with a clearance request.

6.1.2. In areas not under strict control of personnel involved with a clearance, or areas with public access, padlocks or other positive controls shall be installed on the isolation devices along with the appropriate tags. This procedure will be specified in the request for a clearance and will be in compliance with lockout/tagout requirements.

6.1.3. Any system operated by a remotely controlled source shall be isolated such that it cannot be operated. Computer software, or any other type of programming, shall not be used to create isolation points.

6.1.4. Prior to starting work on systems which have been locked out or tagged out, the job supervisor shall verify that isolation and deenergization of the systems has successfully been accomplished.

6.2 USE OF LOCKOUT/TAGOUT DEVICES WITHIN A CLEARANCE.
Lockout/tagout devices may be used within the perimeter of a clearance for protection of workmen as stipulated in the Hazardous Energy Control Procedures.

VII. GROUP LOCKOUT AND TAGOUT

7.1. When maintenance is performed by a crew, craft, department, or other group of personnel,

they shall utilize a procedure which affords them a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout and tagout shall be conducted in accordance with the procedures required by section IX and include the following:

A. Primary responsibility for the personnel working under the protection of a group lockout or tagout device, and for the device itself, shall be vested in a job supervisor. The job supervisor shall ascertain the exposure status of individual group members with regard to the lockout or tagout of the system.

B. When group lockout is used, each workman shall affix a personal lockout device to a group lockbox, or comparable mechanism, before he begins work and shall remove these devices after he has completed his portion of the work.

C. When more than one crew, craft, department, etc., is involved, assignment of overall job-associated lockout or tagout control responsibility shall be prescribed in the written procedure.

VIII. SWITCHING PROGRAM FORM

8.1. PURPOSE. The switching program form is used to formalize and document each step in the process of placing and releasing clearances, hot line orders, special conditions, and performing general switching. A typical switching program form is shown in figure 6 in appendix B.

8.2. APPLICATION. A switching program form/switching order shall be completed by the responsible operations supervisor, checked by a second qualified person, where possible, for all operations requiring a clearance, hot line order, special condition, or general switching. Copies of the appropriately filled-in form shall (if possible) be sent in advance (either hard copy or by data transmittal equipment) to each location involved in the program for reference and use by the switchman during the switching and lockout/tagout operation. Upon receipt of an advance copy, the switchman will contact the operations supervisor and read back the switching program to verify that he understands what actions are to be accomplished by the order.

In lieu of an advance copy, the operations supervisor may provide the information by available communication channels to the switchman or second operations supervisor, who will write all information on the switching program form pertinent to his location. Upon receiving all steps in the switching program, the switchman shall read back the entire switching program step-by-step. Switching program forms shall be reviewed by the operations supervisor and the switchman immediately prior to switching. The person receiving and reviewing the switching program form should also perform the switching. The switching program form used by the operations supervisor (Master Copy) shall clearly indicate which instructions are to be accomplished at each station.

It is intended that all documentation for operations covered by this document be done on the switching program form to eliminate duplication of information on other forms, logs, locks, or tags. Upon completion of the work, the switching program form shall be kept as a permanent supplement to the station log. However, it is permissible for the operations supervisor to direct emergency switching and log operational times in the station log without documenting this information on a switching program form.

8.3. NUMBERING. Each switching program form shall be given a unique serial number. The necessary

coding for the year and facility shall be prescribed by the projects. One series of consecutive numbers may be used for all programs, or a separate series of consecutive numbers may be used for clearances, hot line orders, special conditions, and general switching. The form shall indicate whether the procedure is a clearance, hot line order, special conditions, or general switching.

8.4. INFORMATION. "Switching for placement" and "Switching for removal" are the parts of the switching program form used to record in detail the exact operation required and the locking/tagging information. Each operation shall be listed in the precise sequence to be performed, including those operations or steps not requiring a tag. There shall be only one operation per step on the switching program form. No erasures shall be made on switching programs.

Operating one device, and/or checking it in the desired position, and/or tagging it shall be one step.

The location of the lockout/tagout devices and hot line tags defines the perimeter for clearances and hot line orders.

8.5. LOG ENTRIES.

8.5.1. All entries shall be typewritten (manual or computer-generated printout), legibly handwritten in ink, or by other permanent marking material. Entries shall be made as soon as practicable after the action has been accomplished. The name of the person making entries shall appear in the log. In addition to the documentation provided by the switching program form, entries in the dispatch center, control center, and/or station log shall be made as follows:

A. PLACEMENT ACTION. After the placement operations are complete and the action has been issued, the operations supervisor shall log the following:

"Date_____ ," "Time_____ ," "Type of action_____ ," (clearance, hot line order, special condition, or general switching), "No. assigned_____ ," "Issued to_____," "Equipment covered by action_____."

B. REMOVAL ACTION. After a clearance, hot line order, or special condition has been released and the removal operations and/or general switching has been completed, the operations supervisor shall log the following:

"Date_____," "Time_____ ," "Type of action_____ ," (clearance, hot line order, special condition, or general switching), "No. assigned_____ ," Released by_____ ," "Equipment covered by action_____."

8.5.2. It is imperative that each facility/project develop a systematic method of keeping appropriate personnel informed concerning the status of clearances, hot line orders, general switching, and special conditions. To accomplish this, the following are minimally required:

A. The placement/removal action log entry will be made in a distinctive color of ink, or a rubber stamp will be used to stamp the required format data in the log as shown in paragraphs 8.5.1.A and 8.5.1.B.

B. A readily accessible file of switching program forms will be maintained for current clearances, hot line orders, special conditions, and special work permits.

8.5.3. Errors in log entries shall be voided by drawing a single line through the error and shall be initialed by the person making the correction. Under no circumstance will pages be removed from permanent logs, either manual or computer generated.

8.6. SAFETY TAGS. These tags are used in connection with clearances and hot line orders to convey the warning, DO NOT OPERATE, as discussed in sections VII and XV. Only approved prenumbered Hazardous Energy Control Program safety tags shall be used. Approved unnumbered tags (figure 1 in appendix B) are stocked at Reclamation's Denver Office (code D-7923) and are available on request. Each facility/project shall designate and affix appropriate sequential identifying numbers and/or letters to at least one side of each tag. The choice of tag identifying numbers and/or letters must assure that there is no possibility of confusion with other tags used in the same or an adjacent operating area.

8.7. HOT LINE TAGS. These tags are used in connection with hot line orders to prevent reenergizing equipment, as discussed in section XX. Only approved,'prenumbered, yellow, plastic-type hot line tags shall be used for this purpose. Unnumbered tags (figure 4 in appendix B) are stocked at Reclamation's Denver Office (code D-7923) and are available on request. The tags shall be uniquely prenumbered by each facility/project.

8.8. SPECIAL CONDITION TAGS. These tags are used to designate special conditions affecting equipment as discussed in section XVI. Only approved tags (figure 3 in appendix B) shall be used for this purpose. These tags are stocked at Reclamation's Denver Office (code D-7923) and are available on request. The tag shall be numbered and completed in ink or typewritten.

8.9. DANGER TAGS. These tags are for the protection of the workman and shall be used by the workman as discussed in sections VI and VII. These tags (figure 2 in appendix B) are stocked at Reclamation's Denver Office (code D-7923) and are available on request.

8.9.1 Danger tags shall not be used on electrical circuits above 600 volts and shall not be used when the protection required should be furnished by a clearance. This also applies to lockout devices that replicate danger tags.

8.10. SPECIAL WORK PERMIT FORM. The special work permit form formalizes and documents the preparation and coordination between Reclamation and non-Agency personnel to authorize work by contractors and non-Agency construction or maintenance forces on or near Reclamation power or water facilities. The special work permit form (PO&M-169) (figure 5 in appendix B) is available on request from Reclamation's Denver Office (code D-7923).

This form provides:

A. A documented protective action (clearance or hot line order if required) on a specified Reclamation power or water facility.

B. A statement that the undersigned have discussed the work to be done, reviewed the details of the above

documented protective action for adequacy, and defined the perimeter and conditions of the safe working area.

C. A written description and/or drawings identifying the perimeter of the safe working area.

D. Space for the signatures of the Reclamation and contractor's representatives at the worksite indicating full agreement and understanding, together with the date and time that it is satisfactory to proceed with the work.

E. A release statement to be signed by the contractor's representative that the work has been completed.

IX. CLEARANCES

9.1. PURPOSE. Clearances are used to establish, under a controlled discipline, a safe environment within which workmen can perform their assigned tasks. A CLEARANCE IS USED PRIMARILY FOR PROTECTION OF PERSONNEL BUT MAY INCIDENTALLY PROVIDE PROTECTION FOR EQUIPMENT. The clearance procedure is intended to accomplish this protection with the understanding that safe work practices take precedence over immediate job production.

9.2. AUTHORIZED EMPLOYEES.

9.2.1. Authorized employees shall do all switching and operating of local controls and isolating equipment such as circuit breakers, disconnecting switches, grounding switches, valves, gates, etc., and shall place locks and safety tags where required by the switching program instructions. The authorized employee placing the protection is responsible for reviewing the switching for his location, for properly executing the functions indicated, and for properly completing the logging requirements.

9.3. THE OPERATIONS SUPERVISOR.

9.3.1. The operations supervisor is responsible for authorizing and issuing clearances on all equipment affecting the Federal power and water system.

9.3.2. Operations supervisors shall, upon receipt of a clearance request:

A. Determine whether an analysis of the hazards of the energy to be controlled has been conducted and all hazardous energy control points have been identified. The proposed procedure will safely control all hazardous energy at all potential energizing points. After this has been verified, the operations supervisor can approve the clearance request.

B. Be responsible for preparing a correct switching program and properly directing the switching and related operations.

C. Coordinate with appropriate agencies and other entities to assure isolation of systems which are to be cleared.

D. Assure the positioning of all energy isolation devices specified in the clearance request form and locking and tagging all points accordingly (this may be performed by a designated representative of the operations supervisor, i.e., switchman).

E. Assure that the equipment under clearance is safe for the work to be performed (this may be performed by a designated representative of the operations supervisor, i.e., switchman).

F. Assure equipment is ready for service after work has been completed and the authorized employee has released the clearance (this may be performed by a designated representative of the issuing individual (operations supervisor, i.e., switchman).

G. Record the issue and release of clearances in the station log.

H. Direct the switchman (or switchmen) to perform the switching and related operations to remove the clearance after it has been released by the job supervisor.

9.4. THE JOB SUPERVISORS.

9.4.1. The job supervisor shall:

A. Determine if Reclamation's safety requirements indicate the necessity of a clearance, and if a clearance is necessary, he shall obtain a clearance before starting the work.

B. Make the request for a clearance using the proper clearance request form.

C. Check the Hazardous Energy Control Procedures to assure that the protection to be provided is adequate for the work to be performed.

D. Make appropriate tests to verify isolation of the system; if there is a possibility of reaccumulation of stored energy to a hazardous level, corrective measures shall be taken prior to the issuance of the clearance.

E. Assume responsibility for the system covered by the clearance until it is released or transferred.

F. Assure installation of all required physical barriers and protective grounds.

G. Notify all personnel working under the clearance -of the conditions and perimeter of the clearance before work is started.

H. Keep the operations supervisor informed of lockout and tagout conditions and the status of the work.

I. Promptly notify each person working under the clearance of . any changes in conditions or status of the equipment.

J. Upon completion of the job, see that all personnel working under his assigned clearance are in the clear, that all temporary protection such as danger tags and personal grounds are removed, and that any unusual conditions are reported to the operations supervisor. Assure that all nonessential items have been removed from the area. In the case of remote facilities, another qualified person may conduct the inspection under the direction of the job supervisor. The job supervisor shall then release the clearance.

9.4.2. If it is necessary to perform scheduled work requiring a clearance at an isolated location where communication with the operations supervisor is difficult or impossible, the following procedure shall be used.

A. Before he leaves for the work location, the job supervisor will obtain from the operations supervisor complete instructions for all switching and protection required, including instructions for returning the equipment to normal. These instructions will be recorded on a switching program form(s).

B. On arrival at the work location, the job supervisor will perform or direct the required switching and will log on the switching program form all switching times and tag numbers. He will then log on the switching program form and in the station log that he is taking his own clearance under the number preassigned by the operations supervisor.

C. Upon completion of the job, the job supervisor will log on the switching program form and in the station log the release of his clearance. The job supervisor will then perform or direct the switching required to restore the equipment to normal, which he will also log on the switching program form.

D. If for any reason the work does not proceed according to the schedule under which the instructions were provided, the job supervisor shall make every reasonable effort to advise the operations supervisor of the changes in the work schedule. In all cases, the job supervisor shall report all operations as soon as he is able to communicate with the operations supervisor.

9.4.3. In an emergency situation (paragraph 1.8), where the job supervisor determines that a piece of equipment needs immediate attention, and communications with the operations supervisor are not available, he shall provide his own clearance protection. In placing, issuing, releasing, and removing his clearance, he shall observe all the principles of switching, tagging, locking, and logging as set forth in this document. He shall perform the logging requirements and furnish a complete report of all operations he performed to the operations supervisor as soon as possible.

9.5. THE WORKMAN

9.5.1. The workman is responsible for understanding the perimeter of the clearance and for obtaining permission from the person holding the clearance before working on equipment within the perimeter of the clearance. NO PERSON WILL BE REQUIRED TO WORK ON A JOB OR PIECE OF EQUIPMENT THAT HE CONSIDERS UNSAFE and must request any Additional protection he deems necessary for a safe job.

9.6. THE SWITCHMAN.

9.6.1. THE SWITCHMAN SHALL ALWAYS PERFORM OPERATIONS IN THE SEQUENCE LISTED ON THE SWITCHING PROGRAM FORM. If a question arises at any point during the

switching sequence, the question shall be resolved before continuing with the switching program. In conducting switching operations, the switchman shall be responsible for, but not limited to, the following actions:

A. Before operating a disconnect, check the position indicators on circuit breakers to see that they correspond with the desired position. The switchman shall not rely on the position indicating lights on the control board or CRT.

B. Check to see that all single-pole disconnect switches are either completely open or closed and latched as directed by the instruction (switching program).

C. Check to see that all blades on a gang-operated disconnect switch are completely open or completely closed after it has been operated and then lock it in the position directed by the instruction (switching program).

D. Check all blades for proper position and verify that the motor operator or operating handle is properly locked or blocked, when instructions are to "Check open" or "Check closed" either manually or motor operated disconnect switches.

E. Check the position indicator on the voltage regulator- rather than the remote indicator-for neutral position when bypassing this equipment.

F. Check the operation indicators on all interrupter units when practicable, as well as the air-break blades, to see that they correspond with the desired position.

G. In locations where equipment is exposed to the public, tagged controls must be disabled, locked, or attended to prevent violation of a clearance or hot line order.

9.6.2. The switchman performing the switching operation shall not proceed further with the switching detailed on the switching program form if:

A. He does not clearly understand the instruction.

B. He believes the instruction is incorrect.

C. At any point in the operations, an unexpected relay, breaker, or other action occurs.

D. He finds a device in a position other than indicated by the operations supervisor when the instructions were issued.

E. He determines that by performing a step, it could result in a dangerous condition.

If any of these conditions are encountered, the procedure shall be rechecked with the operations supervisor before proceeding further.

X. PROCEDURES FOR ISSUING CLEARANCES

10.1. The job supervisor shall request a clearance from the operations supervisor as soon as practical (specific time requirements will be outlined in each individual project's Hazardous Energy Control Procedures) and shall give the information required on the switching program form and the perimeter needed for adequate protection.

10.1.1. Before switching is started, the operations supervisor shall prepare the switching program form which shows the sequence of the required switching and/or operations. All switching programs shall be checked by a second qualified person whenever possible.

10.1.2. Every person involved in placing and issuing a clearance shall analyze the switching instructions. If there are any questions regarding the completeness or correctness of the switching program, these questions shall be resolved before the switching is started. If a question arises at any point during the switching sequence, this question shall be resolved before continuing with the switching program. Each person shall be responsible for the correctness of the procedure.

10.1.3. The switchman shall verify at each location that all operations called for on the switching program are complete and all lockout/tagout devices have been placed. The operations supervisor shall then state to the job supervisor receiving the clearance exactly what protection has been provided. This statement shall include the status of pertinent equipment and the location of each lockout/tagout device. All equipment must be correctly and definitely identified. In the case of a transmission line, it must be given its proper designation, and all terminals between which the clearance is given must be specifically identified. The job supervisor receiving the clearance shall repeat to the operations supervisor the exact protection provided.

10.1.4. After the above requirements have been fulfilled, the operations supervisor shall issue the clearance to the job supervisor designated to receive the clearance. The clearance information, including date and time, clearance number, equipment involved, and to whom the clearance was issued, shall be logged in the station log.

10.2. IDENTICAL CLEARANCE. When it is desired to issue two or more concurrent clearances on the same equipment requiring the same protective perimeter and exactly the same lockout/tagout application, the operations supervisor shall record all clearances issued on the SAME switching program form, which shall be marked distinctively to indicate an identical clearance. This shall be done by filling in the job supervisor's name for each clearance in the "Issued to _____ column. The same clearance number, plus a different suffix letter (A, B, C, etc.) or suffix number for each additional clearance, shall be used in the "No. _____column. When taking an identical clearance, the job supervisor shall utilize a copy of the switching program form to check all switching done before receiving his clearance. No additional lockout/tagout devices need be placed, and no protection is to be removed from the equipment until ALL clearances have been released (order of release is optional) and so noted in the "Released by _____" column of the operations supervisor's switching program form. Whenever an identical clearance is issued, the operations supervisor shall notify all appropriate job supervisors that an identical clearance has been issued. All identical clearance holders shall assume full responsibility for their clearance.

XI. TRANSFER OF RESPONSIBILITY FOR A CLEARANCE. If the job supervisor holding a clearance needs to transfer his responsibility to another job supervisor, he must report to the operations supervisor and state his intention. The second job supervisor shall then request and obtain an identical clearance in the manner described in paragraph 10. 2, after which the first job supervisor shall release his clearance. The second job supervisor will then be held responsible for the release of his clearance upon completion of the work. If the job supervisor holding the clearance leaves the facility or project for an extended period of time (local Hazardous Energy Control Procedures shall designate amount of time), he shall transfer the clearance to another job supervisor.

11.1 When the job supervisor is not available to transfer his responsibility for a clearance for any reason, it can be done in the following manner:

A. Verification must be made by the operations supervisor that the job supervisor is not available.

B. The individual's supervisor will take full responsibility for transferring the clearance to himself or another authorized employee.

C. The transfer will follow the guidelines set forth above.

XII. CHANGE OF CLEARANCE PERIMETER. If it becomes necessary to alter an existing clearance, the job supervisor shall request a new clearance and shall notify all involved workmen of the change. The operations supervisor shall prepare a new switching program form with the required information and the switching steps for placement of lockout/tagout devices to cover the new clearance and direct a switchman to perform the required switching and tagging.

After the switching has been performed and new lockout/tagout devices placed, the operations supervisor shall issue the new clearance to the job supervisor who shall then release his original clearance. The operations supervisor shall enter the switching steps and direct the removal of the lockout/tagout devices associated with the original clearance which are not required under the new clearance. He will then will ensure that the "Removal" (return to service) part of the new switching program form reflects the necessary steps in proper sequence to return the equipment to normal.

It may become necessary to alter an existing clearance. If so, the lockout/tagout device(s) placed under the original clearance may be left in place and may be transferred to the new clearance if:

A. The devices were placed for open jumpers.

B. The clearance includes a point of protection that is located a considerable distance from the work area, and personnel or equipment are not readily available to place an additional lockout/tagout device(s).

C. It is hazardous to place an additional lockout/tagout device.

The protection and safety tag(s) being "transferred" shall be included as a step of the placement portion of the new clearance switching program form. The documentation shall clearly state the clearance program number that the lockout/tagout device(s) are being "transferred" from, the lockout/tagout device(s) number, and the date of the "transfer."

XIII. OPERATING EQUIPMENT WITHIN THE PERIMETER OF A CLEARANCE

13.1. Within the perimeter of the clearance, the job supervisor holding the clearance may allow workmen to operate equipment, which is not locked or tagged for tests and adjustments. The job supervisor is responsible to see that the equipment is safe to operate and, unless otherwise agreed to by the operations supervisor, returned to the original position it was in at the time the clearance was issued before releasing his clearance. Any unusual or unexpected operating conditions or requirements must be reported to the operations supervisor.

XIV. CHECKS AND TESTS ON EQUIPMENT UNDER CLEARANCE

14.1. TEMPORARY REMOVAL OF LOCKOUT OR TAGOUT DEVICES.

A. In situations where lockout or tagout devices must be temporarily removed from the energy isolating device and the system energized for testing or repositioning purposes, a standard operating procedure shall be developed and included in the Hazardous Energy Control Procedure.

B. If more than one clearance is issued or there are overlapping clearances, all responsible parties shall coordinate the operation to assure the safety of all personnel.

C. If it is necessary to energize the equipment under clearance at a source of primary system energy for testing or checking purposes before the work is completed, the clearance shall be released in the usual manner with the applicable lockout/tagout devices removed, and the tests made.

A new clearance shall be requested and issued before the work is allowed to continue. Once a clearance is released, it cannot be reissued; however, the new clearance may use lockout/tagout devices from the old clearance.

D. The standard operating procedure shall specify the following actions which are to be effected in the following sequence:

1. Clearing the equipment of tools and nonessential items in accordance with paragraph 9.4.1, and the removal of personnel from the area and notification of affected employees that the lockout or tagout device will be removed.

2. Removal of the lockout or tagout device as specified in paragraph 9.4.l.

3. System energization and the necessary testing or repositioning.

4. Reapplication of hazardous energy control measures in accordance with paragraph 6.1 to continue servicing or maintenance.

E. All operation of equipment temporarily removed from lockout or tagout shall be conducted by authorized employees.

F. Any operation of equipment temporarily removed from lockout or tagout shall be scheduled and coordinated in advance with the operations supervisor.

14.2. For checks or tests which require operation of auxiliary equipment controls affixed with lockout/tagout devices, the following procedure shall be followed:

A. The job supervisor holding the clearance shall contact the operations supervisor and request that a check or test operation be made.

B. The job supervisor shall explain exactly what tests are to be made and what equipment is to be operated. It is the job supervisor's responsibility to notify all personnel of the check or test to be performed.

C. The operations supervisor, after establishing that the equipment can be operated safely and that all personnel have been advised of the test and are in the clear, shall have the switchman temporarily remove the appropriate lockout/tagout devices to permit the operation. If there are overlapping clearances on the equipment, permission to operate the equipment must be obtained by the operations supervisor from all other clearance holders.

D. After the tests have been completed, the operations supervisor shall have the switchman check or reposition the controls where lockout/tagout devices were removed for agreement with the switching program form. All lockout/tagout devices shall be immediately replaced after the operational check is made and before work is resumed.

E. The name of the authorized employee requesting the test, reason, lockout/tagout devices lifted, and time will be logged by the operations supervisor.

14.2.1 This procedure requires close coordination between the operations supervisor, job supervisor, switchman, and workmen.

XV. RELEASING A CLEARANCE

15.1. Before the clearance is released and energy is restored to the system, the following actions shall be taken:

A. Upon completion of the work, notification shall be made to all involved workmen of the intent to release the clearance. The workmen shall remove all personal grounds, personal lockout/tagout devices, and any other devices attached to the equipment. The work area shall be inspected by the job supervisor to ensure that nonessential items have been removed from the equipment, that the components are operationally intact, and that all personnel are in the clear.

B. The job supervisor shall release his clearance by reporting to the operations supervisor. The job supervisor shall state that all personnel are clear of the equipment; that all personal grounds, personal lockout/tagout devices, and other devices are removed; and that the equipment is in safe operating condition. If any of the above conditions have not or cannot be met, he shall so state giving full details.

C. The operations supervisor will so note the release (including any conditional status of the equipment as stated by the job supervisor) on the switching program form. The operations supervisor will notify other job supervisors, switchman, and entities involved in the case of joint jurisdiction.

D. The operations supervisor shall notify the switchman that the clearance has been released and shall order the protection removed and the equipment returned to normal. The use of the switching program form, the responsibility for directing the switching operations, the analysis of the completeness and correctness of the switching instructions, and the reporting of the operations performed shall follow the Hazardous Energy Control Procedures of the facility.

E. At the discretion of the operations supervisor, it is permissible to delay the removal of lockout/tagout devices at remote locations until it is practical to remove them. This permission to delay removal and the subsequent removal shall be recorded in the station logs. The switching program shall not be considered complete until all appropriate lockout/tagout devices are removed.

15.2. With the exception of the following conditions, each personal lockout or tagout device shall be removed from each energy isolating device by the authorized employee who applied the device. When this individual is not available to remove it (due to serious illness or other reasons), the device may be removed by the individual's supervisor in consultation with the operations supervisor and the job supervisor. This action can only be taken when the following procedures and training for such removal have been developed, documented, and incorporated in the energy control program. This same procedure also applies for the release of a clearance when the clearance holder is not available. (See figure 7 in appendix B, for example of documentation required.)

A. Verification must be made by the operations supervisor that the individual who applied the device is not at the facility.

B. The individual's supervisor will make all reasonable efforts to contact the individual to inform him that the lockout or tagout device will be or has been removed.

C. The individual is informed that the lockout or tagout device has been removed prior to resuming work at the facility.

D. The individual's supervisor advises the person assuming responsibility of the clearance of the work already performed and the work to be performed.

E. The operations supervisor issues a new clearance, and the individual's supervisor releases the original clearance.

XVI. SPECIAL CONDITION

16.1. PURPOSE. The special condition procedure is used to provide TEMPORARY special operating or limiting instructions. Although a special condition tag may serve as temporary protection for equipment, IT SHALL NEVER BE USED FOR PERSONNEL PROTECTION. A special condition tag shall not be used for permanent instructions, which should be given on permanent instruction plates or by other

acceptable means. If used for an extended period of time, the special condition tag shall be replaced and updated annually to reflect current equipment and/or operating changes.

16.2. RESPONSIBILITY AND AUTHORITY. Any employee who observes power or auxiliary equipment that is damaged or in a condition which may limit its operation or compromise its integrity shall report such condition to the operations supervisor as soon as practical. The operations supervisor shall determine if the special condition procedure is applicable. Necessary instructions shall be provided by the operations supervisor.

16.3. PLACING PROCEDURE. If possible, application of the special condition shall be accomplished by attaching to the control device a special condition tag which details the necessary instructions. If there is no accessible control device, the tag must be placed in a conspicuous location on the equipment. were provided, CRT SCADA points shall also reflect the special condition tag. Placement of all special conditions shall be identified by a number assigned by the operations supervisor and documented in a switching program form and in the station log.

16.4. REMOVAL PROCEDURE. When conditions requiring special condition tags no longer exist, the operations supervisor shall order the removal of the special condition tags. Such removal shall be documented in a switching program form and in the station log.

XVII. TAGGING OF EQUIPMENT OPERATED BY SUPERVISORY CONTROL

17.1. SUPERVISORY CONTROL WITH CRT. When a clearance, hot line order, or special condition is issued on equipment that is operated by a supervisory control system which utilizes CRT displays, the status of such equipment shall be positively indicated by means of an appropriate symbol displayed on all CRT displays which serve as the supervisory control point. If clearance, hot line order, and special condition placement or removal data are automatically logged and documented by means of the computer printout, these printouts may be used to supplement the documentation in the dispatch office/control center log and switching program forms.

17.2. CLEARANCE. When a clearance is involved, the tag indication on the CRT discussed in paragraph 17.1 is for the information of the operations supervisor. The CRT indication and the supervisory tag SHALL NOT BE RELIED UPON TO PROTECT WORKMEN (refer to paragraph 6.1.3).

17.3. SIMULTANEOUS CLEARANCE AND HOT LINE ORDER WITH CRT. When a hot line order and a clearance are to be in place simultaneously and the supervisor control with CRT cannot indicate both the clearance tag and a hot line tag associated with one device at the same time,, the hot line tag shall take precedence over the clearance tag. This is necessary because the hot line tag indication on the CRT provides protection, while the clearance (safety) tag indication on the CRT is for information only. If either action is removed, the appropriate remaining tag indication shall be established.

XVIII. GENERAL SWITCHING

18.1. PURPOSE. General switching is performed for line sectionalizing or system equipment

rearrangement for testing and/or changes in operating conditions. Such operations are not normally associated with clearances, hot line orders, or special conditions.

18.2. PROCEDURES. A switching program form should be prepared and double checked, if possible, for each application of general switching. The operations shall be directed by the operations supervisor similar to switching associated with clearances. The switchman shall perform each step in sequence and complete the switching program form as applicable. Tags are not required for general switching. Note: Operation of disconnect switches shall be documented by use of a switching program form.

18.3. SWITCHING CAPACITOR BANKS. At least 5 minutes shall elapse between the opening of the circuit breaker, circuit switcher, or disconnect switch and the closing of the ground switch, on a fully charged capacitor bank. A capacitor bank shall remain deenergized for at least 5 minutes immediately before it is reenergized. An additional 5 minutes shall be allowed after the ground switch is closed before issuing the clearance permitting protective grounds to be installed. The time required above shall be explicitly expressed in switching orders involving capacitor banks.

XIX. INSTRUCTIONS FOR POWER SYSTEM SWITCHING

19.1. SWITCHING PROGRAMS.

19.1.1. Nonstandard abbreviations and terms shall be avoided. When switching programs are being transmitted orally, the instructions shall be given slowly to allow the switchman receiving the message adequate time to write the complete instruction ON THE SWITCHING PROGRAM FORM OR SWITCHING ORDER. Equipment identification shall minimally be by name and number only and need not be further identified by type and/or usage unless the device is difficult to identify.

19.1.2. Every switchman receiving switching instructions shall record them on a switching program form or switching order. All switching instructions, no matter how simple, shall be written in exactly the same sequence as transmitted by the operations supervisor. Special emphasis shall be placed on understanding the operation to be performed and on the correct identification of the device. After receiving and writing the instructions, the switchman shall read them back to the operations supervisor slowly enough to enable the operations supervisor to verify that the correct instructions were received and correctly recorded. No switching shall be performed until the operations supervisor has verified all items of the written instructions.

The verified written switching program form or switching order shall be carried and referred to by the switchman throughout the entire operation. Before each step is performed, the switchman shall check the instructions to make certain he is at the correct device and that he understands what action is to be taken. After performing each operation and before proceeding with the next step of the switching instructions, the switchman shall check the device to see that it is in the desired condition and then complete the switching program form or switching order as applicable.

19.1.3. When the switching steps or program has been completed, as directed by the operations supervisor, the switchman shall report to the operations supervisor, stating the time each step was completed.

XX. HOT LINE ORDERS

20.1. PURPOSE.

20.1.1. The hot line order is used to permit work to be done on or near energized equipment under certain conditions that are considered safe for workmen. The equipment is to be considered energized or "hot." Safe conditions are established by removing from service all automatic reclosing features capable of energizing the equipment, by tagging these features with a tagout device and by placing a hot line tag on the appropriate control switches (local and/or supervisory) of all breakers connected to the equipment or as outlined in paragraph XVII. Closing breakers, which could energize the equipment or cause switching surges on the equipment, is prohibited until contact is made with the job supervisor. The job supervisor shall be notified before making or breaking parallel on any equipment or line close enough to have an effect on the equipment covered by the hot line order.

20.1.2. There are numerous tapped transmission lines which can be backfed through various low-voltage switches which are not controlled by the Agency operations supervisor. Therefore, a "non-Agency verbal hot line order" will be obtained from the responsible non-Agency operations supervisor on normally open but untagged disconnect switches under his jurisdiction. The non-Agency operations supervisor providing the verbal hot line order must not allow operation of the normally open switches without permission from the Agency operations supervisor on duty. The non-Agency verbal hot line order will be a documented switching step.

20.1.3. Hot line orders shall NOT be issued on a power circuit while any work or tests are in progress on protective relays or control circuits which would compromise the tripping of any circuit breakers involved in the hot line order. No work is to be permitted on communication channels or equipment that could interrupt protective relaying and/or voice communications which would compromise the tripping of any circuit breakers involved in a hot line order or interfere with positive communications with the operations supervisor.

20.2. RESPONSIBILITY AND AUTHORITY. The responsibility and authority to issue, receive, release, and remove a hot line order and to place and remove the protection is essentially the same as outlined for a clearance under section IX. The job supervisor holding a hot line order shall remain at the worksite at all times while the work is being performed under the order. Positive communication should be maintained between the operations supervisor and job supervisor at all times while work is being performed under a hot line order. The operations supervisor should be informed when radio contact cannot be maintained.

20.3. PLACING A HOT LINE ORDER.

20.3.1. The job supervisor shall request a hot line order from the operations supervisor as soon as practical (at least 16 hours in advance, except in emergencies) and shall give to the operations supervisor the information required on the switching program form.

20.3.2. The operations supervisor shall prepare the switching program form which shows the sequence of the required switching and tagging operations. All switching programs shall be checked by a second qualified person whenever possible. Each party shall be responsible for the correctness of the procedure.

20.3.3. Every person involved in placing and issuing a hot line order shall analyze the switching program. If there are any questions regarding the completeness or correctness of the switching program, these questions are to be resolved before the switching is started. If a question arises at any point during the switching sequence, this question shall be resolved before continuing with the switching program.

20.3.4. The operations supervisor shall issue the hot line order to the job supervisor when:

A. The switchman has verified at each location involved that all associated automatic reclosing devices have been deactivated and tagged with safety tags, except as provided in paragraph XVII.

B. All control switches (local and supervisory) for circuit breakers involved have been tagged with the proper hot line tag.

C. All necessary non-Agency verbal hot line orders have been obtained.

It is permissible to tag with a hot line tag only the differential auxiliary (manual reset) relay when placing a hot line order on a bus section protected by a bus differential scheme which will trip and block automatic, manual, and supervisory controlled closing of all power circuit breakers associated with that particular bus. The operations supervisor, when issuing the hot line order, shall state to the job supervisor exactly what protection has been provided. Where applicable, this statement shall include which circuit breakers are involved, which automatic devices have been deactivated, and what non-Agency verbal hot line orders on normally open disconnects have been obtained. The job supervisor receiving the hot line order shall repeat back to the operations supervisor the exact protection provided.

20.3.5. Some supervisory controlled stations and other power system facilities are equipped, or capable of being equipped, to disable power circuit breaker automatic reclosing circuits by means of supervisory control from a control center or dispatch office. When stations are so equipped, it is permissible to issue hot line orders without the physical placement of safety and hot line tags at the stations, if the supervisory control provides:

A. A reliable indication at each station that a hot line order is in effect.

B. A reliable indication back to the control center or dispatch office that the automatic recloser is indeed inoperable.

C. That the circuitry involved in A and B above will maintain status in the event of an electrical or supervisory control system failure.

20.3.6. Should the supervisory control be out of service when placing the hot line order, all tags shall be placed manually in accordance with paragraph XVII. If and when the supervisory control is returned to service, the hot line order should be placed by supervisory control, the job supervisor shall be notified of the change, and the manually applied tags may be removed when convenient. All supervisory controlled hot line orders shall be verified immediately upon installing revised software or rebooting the computer. All of the above steps shall be documented on the switching program form and logged by the operations supervisor.

20.3.7. Operating personnel shall be fully trained in the use of the master station supervisory control system prior to operating this equipment without assistance. Use of the hot line order requires full recognition of the

remote hot line order indication by O&M personnel at the dispatch office or control center and remote stations.

20.6. TRANSFER OF RESPONSIBILITY FOR A HOT LINE ORDER.

20.6.1. When it is desired to transfer the responsibility for a hot line order from one job supervisor to another, the same procedure to the one outlined in section XI for transfer of responsibility for a clearance shall be used.

20.7. CHANGE OF HOT LINE ORDER PERIMETER.

20.7.1. If it becomes necessary to alter the perimeter of a hot line order, the operations supervisor shall notify the job supervisor, who will then request a new hot line order identifying the new perimeter. The same procedure to the one outlined in section XII for a change of clearance perimeter shall be used.

20.8. REMOVING /A HOT LINE ORDER.

20.8.1. Upon completion of the work for which the hot line order was taken, the job supervisor shall release his hot line order by reporting to the operations supervisor.

20.8.2. The job supervisor who received the hot line order shall personally release his hot line order. His supervisor may assume responsibility for the hot line order and its release, in an emergency and/or if the job supervisor is unavailable for an unacceptable period of time. This situation shall be fully documented on the switching program form and in the operations supervisor's log.

20.8.3. The operations supervisor shall log the pertinent information regarding the release of the hot line order in accordance with paragraph 8.5.1.B. He will then proceed to restore the line to normal status in accordance with instructions in section XV.

XXI. OPERATIONS ASSOCIATED WITH CONTRACTORS OR NON-AGENCY FORCES

21.1. SPECIAL WORK PERMIT. Except as outlined in section XIV, whenever a contractor or non-Agency organization is involved in a construction or maintenance activity on or near equipment in an Agency facility or transmission line, a special work permit (figure 8 in appendix B) is required to authorize the contractor to proceed with the work. When new equipment could be energized from a source of hazardous energy, a clearance shall be requested and issued. "Contractor," as used in this section, refers not only to Agency contractors but also to construction and maintenance forces of non-Agency organizations which are responsible to the Agency for this work.

20.4. REENERGIZING A LINE WHICH HAS TRIPPED OUT WHILE UNDER A HOT LINE ORDER.

20.4.1. When a transmission line or other power facility which is under a hot line order becomes deenergized, the operations supervisor shall contact the job supervisor holding the hot line order to determine if it is all right to reenergize the line.

20.4.2. When the job supervisor notes that the "hot" line has become deenergized, whether or not his work

or personnel are responsible for the outage, the job supervisor shall immediately order all personnel clear of the circuit, ascertain if the circuit within his work area can be safely reenergized, and then contact the operations supervisor to inform him of the details.

20.4.3. When a switchman is ordered by the operations supervisor to close a circuit breaker which has tripped while under a hot line order, he shall:

A. Remove the hot line tag from the control switch and operate the control switch to close the circuit breaker.

B. After the circuit breaker has closed, replace the hot line tag on the control switch if the hot line order is to be continued.

C. Record pertinent information on the tripout and closure in the station log.

20.4.4. After a circuit under a hot line order has tripped and has been closed, the operations supervisor will inform the job supervisor that the circuit breakers have been closed and that the line is reenergized.

20.4.5. If a circuit which is under a hot line order is to be deenergized and/or reenergized due to operational requirements by the operations supervisor, the job supervisor must be notified before either operation is attempted. The job supervisor shall request a delay in the operation until workmen can be informed and get clear of the circuit.

20.5. IDENTICAL HOTLINE ORDERS.

20.5.1. When it is desired to issue two or more hot line orders on the same equipment requiring the same protection, the same procedure to the one outlined in paragraph 10.2 for identical clearances shall be followed.

21.1.1. Properly qualified and authorized Agency O&M representatives will request the clearances, or hot line orders, perform the required switching, receive the clearances or hot line orders, and issue the special work permit.

21.1.2. Under all conditions, the requirements of Reclamation Safety and Health Standards and/or applicable safety and procedure paragraphs in Reclamation Construction Specifications shall be complied with when Reclamation contractors are involved. In the event of a conflict between the Reclamation Construction Specification, Reclamations Safety and Health Standards, or this document, the more stringent requirements shall prevail.

21.1.3. Contractor personnel performing work at Reclamation-operated and/or maintained facilities shall comply with all existing Hazardous Energy Control Procedures of the facility and Reclamation's Hazardous Energy Control Program.

21.2. PROCEDURE INVOLVING A CLEARANCE. When the sequence of work requires that Agency facilities be deenergized, the contractor's authorized representative shall inform the Agency's authorized representative of his plan for accomplishing the work in such detail as may be necessary and shall request the Agency's authorized representative to arrange for the required outage. The request shall be made with

sufficient advance notice (amount of time will be designated in individual Hazardous Energy Control Procedures) to assure that the operations supervisor can accommodate the request and shall include the name of the contractor's authorized representative who will be responsible for the work and safety of the job.

21.2.1. Following approval of an outage of Agency facilities, an authorized Agency employee shall secure a clearance which documents that the equipment to be worked on has been deenergized and isolated from sources of hazardous energy. A special work permit form will be prepared in duplicate.

21.2.2. The Agency employee holding the clearance shall, in turn, review with the contractor's authorized representative the limits of the deenergized working area and any unusual conditions pertinent to the clearance as follows:

A. When the work is the responsibility of an Agency construction office, the Agency employee holding the clearance shall acquaint both the authorized representative of the Agency's construction office and the authorized representative of the contractor with the full details of the clearance.

B. When non-Agency construction or maintenance forces not under the jurisdiction of an Agency construction office perform work in an Agency facility, they shall give full details of the work to be

performed to the authorized representative of the organization that arranged for the work and is responsible to the Agency.

21.2.3. After the circuit and facilities have been deenergized, the Agency employee holding the clearance, the Agency's authorized representative at the worksite (both of whom may be the same individual), and the contractor's authorized representative shall inspect the worksite to verify the adequacy of the information on the special work permit which specifies what circuits and facilities have been deenergized and defines the perimeter and conditions of the safe working area.

21.2.4. The Agency's authorized representative(s) and the contractor's authorized representative shall then sign all copies of the special work permit at the worksite authorizing the contractor to proceed with the work. Each authorized representative shall retain a copy. No work shall be done until a special work permit has been signed, nor shall any work be done in an area not specifically covered by the special work permit.

21.2.5. After the special work permit has been signed by all parties, and prior to commencement of any other items of work, the contractor shall, under the observation of the Agency's authorized representative, use a hot stick to "feel out" and verify that the circuit is deenergized. The contractor shall then install protective grounds at the worksite in accordance with applicable safety standards. Grounding shall be done with a hot stick, clamp-type grounds placed and removed with a hot stick. Following the grounding, the contractor shall place necessary barricades and take whatever other safety measures are necessary before proceeding with the work.

21.2.6. If, in the opinion of the Agency's authorized representative, the nonelectrical contractor is not sufficiently knowledgeable in, or adequately equipped for, protective grounding, the Agency's authorized representative shall request that competent Agency personnel install the required grounding. This action, including the location of the protective grounds, shall be recorded on the special work permit form.

21.3. PROCEDURE INVOLVING A HOT LINE ORDER. Where work must be performed in close proximity to energized Agency facilities and an outage on these facilities cannot be arranged, a special work permit shall be issued. This work permit shall specify a hot line order be obtained for the energized Agency facilities to ensure against reenergization should the facilities become deenergized. The Agency employee holding the hot line order shall remain at the worksite at all times while work is being performed under the hot line order. The responsibilities of the contractor's and Agency's authorized representatives and the use of the special work permit shall be as outlined under section XVIII. Where work must be performed in close proximity to the energized non-Agency facilities, the contractor or non-Agency person will be responsible for obtaining their own protection from the operations supervisor of that facility.

21.4. TRANSFER OF RESPONSIBILITY FOR WORK PERFORMED UNDER A SPECL4,L WORK PERMIT. Should it be necessary to transfer the responsibility for work under a special work permit from one contractor's authorized representative to another, a new special work permit shall be issued and the existing special work permit released, as outlined in preceding paragraphs of this section. In the event the contractor assigns a new authorized representative and the old representative is not available to release the old special work permit, the new authorized representative shall sign the release of the old special work permit.

21.5. RELEASE OF SPECIAL WORK PERMIT AND CLEARANCE OR HOT LINE ORDER. When the work has been completed, the contractor's authorized representative shall sign all copies of the release of the special work permit certifying that all personnel have been informed of the intent to release and are clear of the area covered by the special work permit and all protective grounds and barricades have been removed. The Agency employee holding the action will:

A. Check to determine that the equipment installed or modified is satisfactory for normal service or energization or is in safe condition for the action to be released, with such determination fully described to the operations supervisor.

B. Inform the operations supervisor that the special work permit has been released. The clearance or hot line order can then be released, but in no case shall either be released until the special work permit has been released.

XXII. OPERATIONS ASSOCIATED WITH NON-AGENCY MAINTENANCE FORCES

22.1. SCOPE. There are several situations where non-Agency utilities own transformers and/or circuit breakers and associated items of equipment which are installed in or connected to Agency facilities. Subject to the approval of -the project manager, area manager, or his designated representative, authorized maintenance personnel of the non-Agency organization may be granted permission to perform switching and receive clearances and/or hot line orders to perform maintenance work on specified non-Agency equipment. Authorized non-Agency maintenance personnel may also be given the authority to issue special work permits to non-Agency contractors.

22.2. RESPONSIBILITY. The non-Agency organization shall accept full responsibility for the safety of its employees, including the proper installation and removal of protective grounds, where required, and for all actions of its employees which might compromise the reliability of the Agency power system and the safety of Agency employees.

22.3. Authorized Employees. The authorized representative of the non-Agency organization shall have been familiarized with the switching and clearance procedures by the Agency in the appropriate Agency station(s). Also, the authorized representative of the non-Agency organization shall have been certified in writing to the project manager, the Area manager, or their designated representatives by the non-Agency organization as being capable to perform switching and to receive and execute clearances and hot line orders in specified Agency stations.

22.3.1. When so certified, the non-Agency authorized representative becomes the "job supervisor" as defined in appendix A. A current list of authorized non-Agency personnel shall be maintained in the Agency dispatch office and control center.

22.3.2. Were the non-Agency organization issues its own clearances in Agency areas approved by the project manager or area manager, a list of authorized non-Agency personnel is not required. The Agency operations supervisor, however, shall be informed when and where work is being performed by the non-Agency organization.

22.4. PROCEDURES. All work shall be coordinated with the Agency operations supervisor, and he shall be notified prior to removing equipment from service and before returning it to service. In those cases directly involving the Agency operations supervisor, all switching, logging, and documentation of clearances and hot line orders shall be performed in accordance with section X, "Procedures for Issuing Clearances," section IX, "Clearances," and section XX, "Hot Line Order[s]," or the equivalent established clearance procedures of the non-Agency organization. Agency-issued clearances may be of the interconnected system type, and the equipment owned by the non-Agency organization may be considered similar to a point of interconnection as discussed in paragraph 20.1.1.

XXIII. OPERATIONS ASSOCIATED WITH INTERCONNECTED SYSTEMS

23.1. INTERCONNECTED SYSTEM CLEARANCES AND HOT LINE ORDERS.

23.1.1. PURPOSE. Interconnected system clearances and hot line orders provide for the protection of personnel at points of interconnection between Agency and non-Agency facilities. The same procedures shall apply to interconnections between two Agency systems under separate operational jurisdiction, either interarea or intraarea.

23.1.2. DEFINITION. The term "interconnected system" is the only term to be used by the Western Area Power Administration (Western). The only exception is when dealing with non-Agency entities who use terms other than "interconnected system." Western operations supervisors shall use the term "interconnected system" on all documentation involving clearances or hot line orders involving a second operations office.

A Western interconnected system clearance or hot line order (may be known as: "intercompany," "source of power," or "dispatcher's" clearance or hot line order by non-Agency offices and personnel) is a statement with documentation from one operations supervisor to another that switching has been performed on one system as a partial or complete requirement for a clearance or hot line order on another system.

The operations supervisor receiving the interconnected system clearance or hot line order is responsible for all other switching and for issuing the clearance or hot line order to the job supervisor.

23.1.3. RESPONSIBILITY. All interconnected system clearances, hot line orders, special conditions, and general switching between interconnected systems, including Agency systems, shall be handled by operations supervisors in accordance with the appropriate operating agreements, unless this responsibility has been delegated to others by the operating agreements.

23.1.4. ISSUANCE TO NON-AGENCY SYSTEMS. When a job supervisor of a non-Agency system requires a clearance or hot line order that will require switching on an Agency system, he will arrange with his operations supervisor to request an interconnected system clearance or hot line order from the Agency operations supervisor. The Agency operations supervisor will then:

A. Prepare a switching program form clearly identified as "interconnected system," "intercompany," "source of power," or "dispatcher's" clearance or hot line order and order switching in accordance with section IX for a clearance or section XX for a hot line order.

B. Verify with the switchmen at each Agency location where switching was performed that all switching has been completed and all lockout/tagout devices have been placed.

C. State clearly to the non-Agency system operations supervisor exactly what protection has been provided. This statement shall include the status of breakers, disconnecting switches, ground switches, reclosers, and other pertinent equipment, and the location of each safety tag and/or hot line tag.

After the non-Agency operations supervisor reads back the exact protection provided and states that he is satisfied that the protection meets the requirements, the Agency operations supervisor will issue the interconnected system clearance or hot line order to the non-Agency operations supervisor. He shall document this action on the switching program form and make the appropriate entry in the operations supervisor's log. The non-Agency operations supervisor is responsible for all switching on his system and for issuance of the clearance or hot line order to his job supervisor.

23.1.5. OBTAINING FROM A NON-AGENCY SYSTEM. When an Agency job supervisor requires a clearance or hot line order requiring switching on a non-Agency system, he will arrange with the Agency operations supervisor to request the appropriate switching on the non-Agency system.

When all operations required on the non-Agency system have been completed and all safety tags and/or hot line tags (or equivalent) have been placed, the non-Agency operations supervisor will so notify the Agency operations supervisor. The Agency operations supervisor will record this information on the switching program form and satisfy himself that the protection thus provided is adequate. The Agency operations supervisor may also obtain a non-Agency verbal hot line order from the non-Agency operations supervisor. He will then receive an interconnected system clearance or hot line order from the non-Agency operations supervisor and document this action on the switching program form so that the interconnected system action becomes a part of the clearance or hot line order issued to the Agency job supervisor. An appropriate entry shall also be made in the operations supervisor's log.

When the required switching on non-Agency equipment is performed by non-Agency distribution-voltage switching centers, the Agency job supervisor may be delegated the authority to deal directly with the non-Agency switching center operations supervisor for clearances or hot line orders.

23.1.6. RELEASE. The interconnected system clearance or hot line order cannot be released until the job supervisor has released his clearance or hot line order. The release of the interconnected system clearance or hot line order will be by the operations supervisor who received it or his counterpart on another shift. Release actions shall be documented on the switching program forms and documented in both the operations supervisor's and station logs.

23.2. DISPATCHING FOR NON-AGENCY UTILITIES. There are specific situations where Agency transmission lines terminate in powerplant switch yards or substations owned and operated by non-Agency utilities and/or where non-Agency transmission lines terminate in Agency switch yards or substations. Under specific operating agreements with the non-Agency utilities, Agency dispatch offices or control centers have been granted dispatching jurisdiction over certain lines, substations, or equipment located in these stations. In these situations, the Agency operations supervisor shall, in accordance with this document and/or specific operating agreements or Memorandums of Understanding:

A. Prepare the switching program.

B. Direct the switching performed by the Agency or non-Agency switchman.

C. Issue the clearance or hot line order to the Agency or non-Agency job supervisor who requested the action. The non-Agency switchman may use the non-Agency utility's tags on equipment owned and operated by that non-Agency utility.

APPENDIX A

DEFINITIONS

Affected employee - a person whose job requires him to operate or use a system on which servicing or maintenance is being performed under lockout or tagout or whose job requires him to work in an area where such servicing or maintenance is being performed.

Agency - means Reclamation, as opposed to other Federal entities, utilities, co-ops, or customers, which herein are called "non-Agency."

Authorized employee - means selected personnel who have been properly trained, tested, and certified to perform the authorized action. When certified, these personnel shall be entered on the official lists of authorizations. The authorized employee shall have knowledge of the type, magnitude, and hazards of the energy involved and the methods to be used to control the energy.

Clearance request form - a form on which requests for clearances, clearance releases, and all other pertinent data in connection with clearances is maintained.

Clearance - is a statement with documentation from the operations supervisor to the job supervisor declaring that the equipment to be worked on has been deenergized and isolated from all hazardous sources of energy. A definite operating arrangement whereby an authorized employee, acting individually or as a representative or crew, isolates a system by lockout or tagout. A device or point under a clearance does not necessarily indicate a zero energy state at that device or point. The clearance is the authorization to perform specified work within the limits of the clearance.

Control center - is a Reclamation station from which one or more powerplants or pumping plants are remotely controlled and from which powerplant (and switchyard as necessary) switching is directed.

Controller - is the employee in charge of the switching function at a control center and may be titled "operator," “control room operator,” “operations system controller,” etc.

Dispatch office - is a location from which load scheduling and/or system switching functions are directed.

Dispatcher - is the employee in charge of the system switching function at a dispatch office, as defined in paragraph 2.5 and may be titled "system operator," "system supervisor," "energy controller," "switching control operator," etc., by various utilities.

Electrical equipment - any device which produces, consumes, stores, transmits, or converts electrical energy.

Emergency - is a situation in which: (a) facilities are in such a condition as to be a hazard to the public, Agency personnel, or the Federal power or water system equipment, or (b) there is a power outage to customers which could be hazardous to life or property.

Energy source - includes electrical, mechanical, hydraulic, pneumatic, chemical, thermal, nuclear, stored, or other energy.

Energy isolation device - a physical device that prevents the transmission or release of energy. Includes, but is not limited to, manually operated circuit breakers, disconnect switches, slide gates, line valves, blocks, or similar devices, capable of blocking or isolating energy, with a position indicator. The term does not include push buttons, selector switches, and other control circuit type devices.

Equipment - means any machine, device, or apparatus, either electrical or mechanical, including electrical circuits, transmission lines, piping systems, or waterways, used in the generation, transmission, and control of electric power, or control of waterways not directly related to power generation, such as spillways, irrigation outlets, conservation facilities, pump stations, etc.

Full personnel protection - when a tagout device is used in place of a lockout device, full personnel protection is provided when: (1) the tagout device is attached at the same location that the lockout device would have been attached, (2) all tagout-related requirements of this regulation have been complied with, and (3) additional means have been taken to provide a level of safety commensurate with that of a lockout device. Such additional means include removing an isolating circuit element, blocking a control switch, opening and tagging an extra (separated by distance) disconnecting device, or removing a valve handle to reduce the likelihood of energization.

General switching - is switching performed for line sectionalizing or system (electrical, mechanical, hydraulic, etc.) rearrangement for testing and/or changes in operating conditions. Such operations are not normally associated with clearances, hot line orders, or special conditions.

Hazardous Energy Control Procedures - the project/facility written procedures (including responsibilities, procedural steps for lockout and tagout, and requirements for testing the effectiveness of energy control measures) to be utilized for the control of hazardous energy. The procedure shall also define the methodology for the execution of clearances, hot line orders, special work permits, special conditions, general switching, or danger tagging.

Hazardous Energy Control Program - the Reclamation-wide written procedure establishing coordinated and consistent procedures and operating criteria for the safe and reliable operation and maintenance of those facilities for the Federal power and water system for which Reclamation is responsible. The program establishes procedures and operating criteria for the safety of personnel whose duties require them to work on or near any system that produces, uses, or stores hazardous energy.

Hazardous energy - is any energy source that may cause injury or death.

Hot line order - is a statement with documentation from an operations supervisor to a job supervisor that the automatic reclosing is turned off and that the equipment covered by the hot line order will not be intentionally reenergized until contact has been made with the job supervisor holding the hot line order.

Incidental person - a person who may have access to the areas containing equipment or controls affected by the Hazardous Energy Control Program.

Isolation - an activity which physically prevents the transmission or release of energy.

Job supervisor - is any person authorized to request, receive, and release clearances and/or hot line orders and who is charged with the responsibility of meeting the requirements of the Hazardous Energy Control Program/Procedures during the job.

Lockout - a form of hazardous energy control utilizing the placement of a lockout device, in accordance with established procedures, on an energy isolating device to ensure that the energy isolating device and the system being controlled cannot be operated until the lockout device is removed.

Lockout device - a keyed lock that utilizes a positive means to hold an energy isolating device in the safe position and prevent the operation of equipment.

Non-Agency verbal hot line order (also known as "verbal hold" or "assurance of no backfeed")- is a statement from the responsible non-Agency operations supervisor that a specific circuit will not be reenergized from an identified non-Agency power source without permission from the Agency operations supervisor. This includes identification of specific, normally open disconnect switches under non-Agency operational jurisdiction.

Non-Agency - refers to any non-Reclamation utility, power system, station, or employee.

Operations supervisor - is any person on a given shift authorized to issue and receive clearances, hot line orders, special conditions, general switching, and interconnected system clearances and hot line orders. This individual is also authorized to direct switching and other operations required in placing and removing the protection required for clearances, hot line orders, and special conditions.

Pressure systems - all pipes, tubing, valves, controls, and other devices which operate or are maintained above atmospheric pressure.

Responsible official - the project manager through his/her subordinates who is responsible for administration of the Hazardous Energy Control Program.

Special condition - means an unusual temporary condition pertaining to equipment and is not associated with other protective procedures. This term indicates the requirement for documenting special operating instructions and information on the current condition of the equipment.

Special work permit - is a statement which formalizes and documents the preparation and coordination between Agency and non-Agency personnel to authorize work by non-Agency forces on or near Agency facilities.

Stations:

A. "Attended station" means any station manned at all times.

B. "Semi-attended station" means any station which is normally manned part time.

C. "Unattended station" is any station not normally manned.

D. "Supervisory controlled station" means any station (attended, semi-attended, or unattended) which is normally operated from a remote location.

Stored energy - energy (electrical, mechanical, chemical, etc.) that might be found in a charge capacitor, a loaded spring, chemical solutions, or other similar hazardous forms.

Switchman - is any person authorized to perform switching and tagging operations.

System - includes machinery, equipment, and electrical, hydraulic, and pneumatic lines and their subsystems.

Tagout device - a prominent warning device, such as a tag with a means of attachment, which can be securely attached to an energy isolating device in accordance with established procedures to indicate that the energy isolating device and system being controlled may not be operated until the tagout device is removed.

Tagout - a form of Hazardous Energy Control Procedures utilizing the placement of a tagging device, in accordance with established procedures, on an energy isolating device to indicate that the energy isolating device and the system being controlled may not be operated until the tagout device is removed.

Vacuum systems - all pipes, tanks, tubing, valves, controls, and other devices which operate or are maintained below atmospheric pressure.

Workman - is any person qualified to inspect, service, repair, or otherwise be in contact with equipment. Workman means selected personnel who have been properly trained, tested, and certified to perform the action being authorized.

Return to Table of Contents **Return to Main Report**

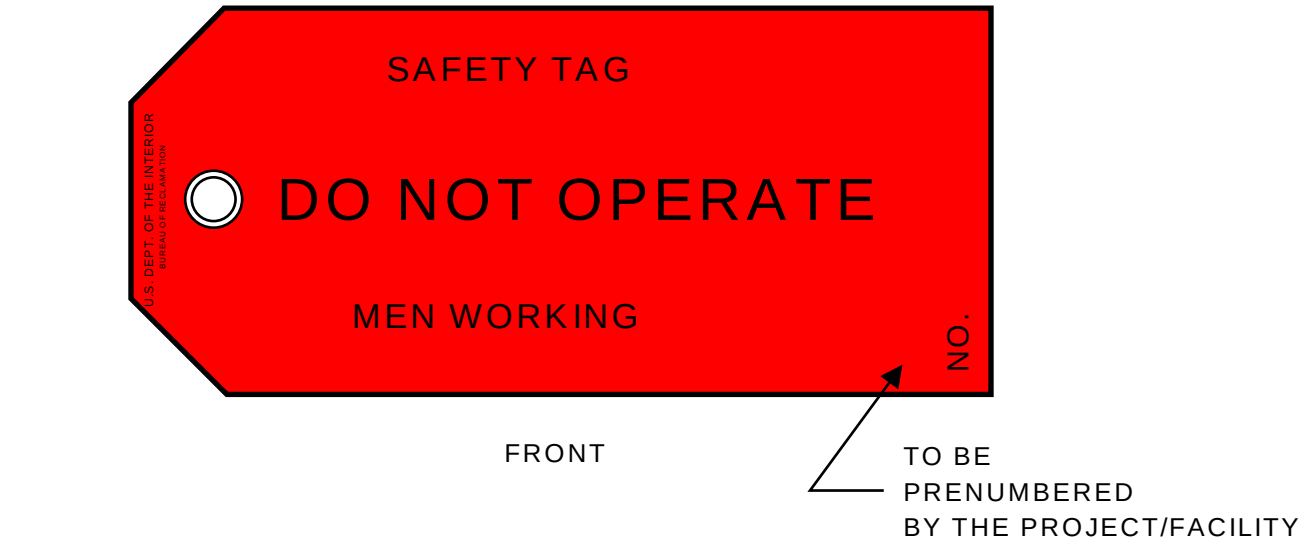


FIGURE 1
SAFETY TAG

FRONT

FIGURE 2
DANGER TAG

BACK

FIGURE 2
DANGER TAG

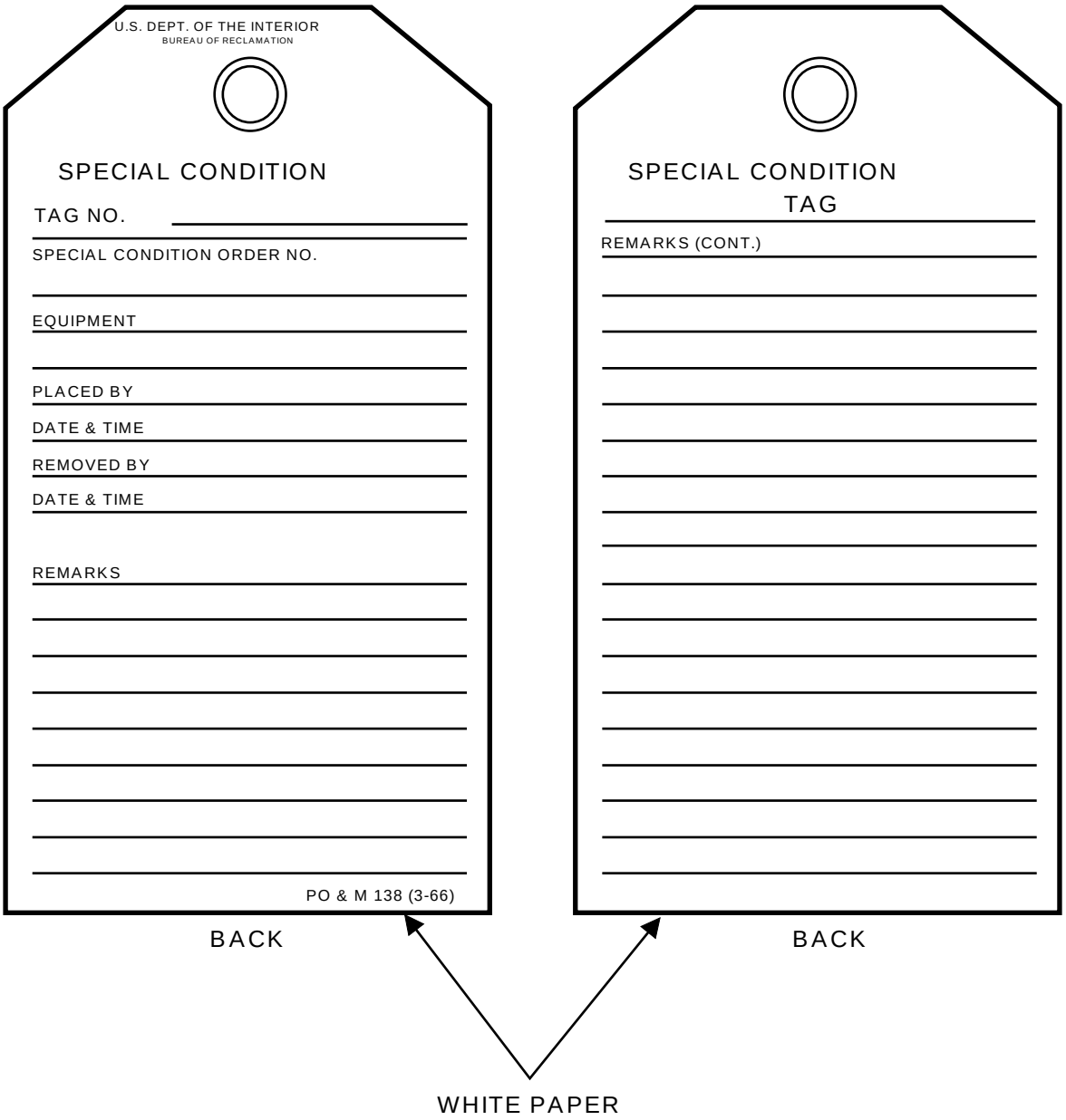
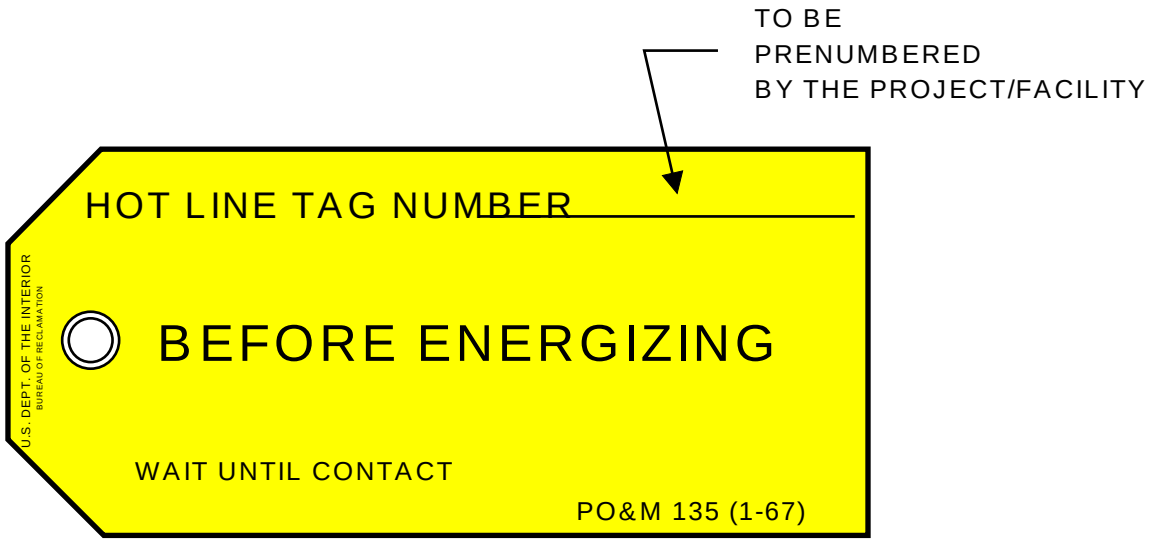
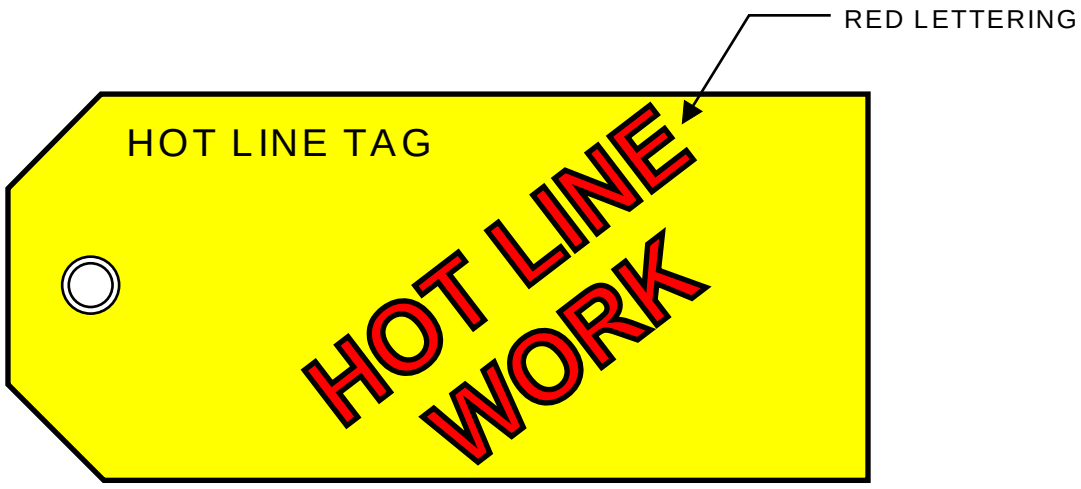


FIGURE 3
SPECIAL CONDITION TAG



FRONT



BACK

FIGURE 4
HOT LINE TAG

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PO&M- 169 (2-80)
Bureau of Reclamation

NUMBER _____

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

SPECIAL WORK PERMIT

SOLICITATION NO. _____

A POWER SYSTEM (CLEARANCE)(HOT LINE ORDER) HAS BEEN ISSUED ON THE FOLLOWING FACILITY.
(MARK ONE OUT)

NOTE: Draw sketches and/or single line diagrams on reverse side showing safe working and hazards if applicable.

☐ **CLEARANCE** **NO.** _____

☐ **HOT LINE ORDER** **DATE** _____ **TIME** _____

_____
(Signature)
BUREAU EMPLOYEE HOLDING ACTION

This Work Permit issued at the worksite Date _____ Time _____
and the contractor is authorized to proceed with the work in the area designated above.

_____
(Signature)
CONTRACTOR'S AUTHORIZED REPRESENTATIVE AT THE WORKSITE

_____
(Signature)
BUREAU REPRESENTATIVE IN CHARGE AT THE WORKSITE

RELEASE OF SPECIAL WORK PERMIT

I HEREBY CERTIFY THAT ALL PROTECTIVE GROUNDS AND BARRIERS HAVE BEEN REMOVED AND THAT ALL PERSONNEL ARE CLEAR OF THE AREA COVERED BY THIS WORK PERMIT.

CONTRACTOR'S AUTHORIZED REPRESENTATIVE (SIGNATURE) DATE TIME

Figure 5

UNF-146 (2-94)
Bureau of Reclamation

SWITCHING PROGRAM FORM

No. _____ Date: _____

O Cearance O Special Condition O Hotline Order O General Switching	Stations
Equipment to be taken out of service	Work to be performed
LIMITS REQUESTED	
Time required Date / Requested by / To be issued to	
Notification to others: time date	Estimated time necessary to return back to service
Comments/Instrucitons:	

Step No.	Detailed Switching and Equipment	Time	Tag No.	Performed by
	Switching for Placement/Switching for Release			

Prepared by:	Checked by:

Number	Issued to		Time	Date	Released by	To	Time	Date

Figure 6

Sheet _____ of _____

UNF-1466(2-94)
Bureau of Reclamation

Switching Order No. ______________________
Continuation Sheet Sheet ____________ of ____________

Step No.	Detailed Switching and Equipment	Time	Tag No.	Performed by

Prepared by:	Checked by:

Figure 6 (Continued)

UNF145 (1-93)

BUREAU OF RECLAMATION
PO Box 25007, Building 67, Denver Federal Center
Denver CO 80225-0007
REMOVAL OF LOCKOUT/TAGOUT DEVICES
(ABNORMAL CONDITIONS)

This form must be completed and made a part of the station log when a lockout/tagout device is removed by someone other than the individual who placed it. RE: Section XV, paragraph 15.2.

Initial each step:

1. ____ Verification has been made by the Operations Supervisor that the individual who placed the device is not at the facility.

2. ____ The individual's supervisor has made a reasonable effort to contact the individual who placed the device to inform him that the device will be or has been removed.

3. ____ The Operations Supervisor has advised the person assuming responsibility for the clearance of the work already performed. (If a clearance is involved.)

4 ____ The operations Supervisor has been/will be informed of the removal of his lockout/tagout device prior to his resuming work at the facility.

5. ____ The individual has been/will be informed of the removal of his lockout/tagout device prior to his resuming work at the facility.

SIGNATURES:

Operations Supervisor _____ Date: _____

Job Supervisor _____ Date: _____

New clearance holder _____ Date: _____

Operations Supervisor: If a clearance was involved with this procedure, attach this document to the clearance.

Show the release and re-issue to the new clearance holder on the clearance form.

Comments: _____

_____

_____

_____

Figure 7

UNF144 (I-93)

BUREAU OF RECLAMATION
PO Box 25007, Building 67, Denver Federal Center
Denver CO 80225-0007
Revision Request Form

Date: _____
Suggester: _____
Office: _____

Suggested Revision: *Section:* _____ *Paragraph:* _____ *Subparagraph:* _____

Basis for Revision: _____

(If additional space is needed, attach necessary pages.)

Signature: _____

This form must be submitted to D-5850 for suggested revisions to be considered and published.

Figure 8

Printed on Recycled Paper

US GOVERNMENT PRINTING OFFICE 1994-840

MISSION STATEMENTS

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

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